

REMARKS

Claims 1 - 5, 7, 9, 11 - 13, 15 - 19, 21, 23 - 26, 28 and 30 - 35, and 37 - 38 are pending. Claims 1, 11, 23, and 31 have been amended. Claims 6, 14, and 36 have been cancelled. No new matter has been introduced. Reexamination and reconsideration of the application are respectfully requested.

In the July 30, 2003 Office Action, the Examiner objected to the specification because there is no Brief Summary of the Invention header or a Brief Summary of the Invention section. The Examiner rejected claims 1 - 7, 9, 11, 12, 14, 15, 21, and 31 - 38 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,742,521 to Ellenby et al. (the Ellenby reference). The Examiner rejected claims 13, 16 - 19, 23 - 26, 28, and 30 under 35 U.S.C. § 103(a) as being unpatentable over the Ellenby reference in view of U.S. Published Patent Application No. 2002/0112237 to Kelts (the Kelts reference). These rejections are respectfully traversed.

A Brief Summary of the Invention has been added to the specification.

The present invention is directed to an automatic statistics generation and management system. A head-end system receives input data of a sporting event and generates semantic information and geometric information based on the input data. The head end system includes a tracking system (which receives and processes the information to generate tracking information) and a production system (which receives the tracking information and generates the event model, i.e., semantic, and the animation model, i.e., geometric, information. The production system utilizes algorithms to automatically detect and add events and actions to the event model information and the animation model information based on the tracking information

provided by the tracking system. The event model information preferably contains higher-level semantic information describing game-type events that occur during the game, e.g., committed foul, player kicking a ball, etc. A statistics generation system receives the event model information and the animation model information from the head-end system and generates the sporting statistics. A statistics management system receives and stores the generated sporting statistics and is also adapted to analyze the sporting statistics.

Claim 1, as amended, recites:

A method of automatic statistics generation and management, comprising:

- receiving video input data of a sporting event;
- generating in real-time semantic information and geometric information based on the video input data without input from an operator *utilizing software applications which include rules and determine from tracking information all the statistical information that is to be recorded for the sporting event* , wherein the semantic information and the geometric information generated are textual information, and the semantic information includes event model information *that describes game-rule type events that occur during a game*; and
- generating sporting statistics based on at least one of the semantic information and the geometric information.

The Ellenby reference is directed to a new and improved system for viewing of a sporting event. The vision system includes the ability to merge an image of a real

scene with a computer generated image to create a composite image of the real scene and computer-generated scene. A camera is used to form an electronic image of a particular scene of interest. A computer can be utilized, along with image processing routines, to manipulate the image before it is presented. Information that can be merged on the image of a real scene includes historic, statistical, symbolic, abstract symbolic, action tracks, etc. (*Col. 1, line 43 - col. 2, line 14*).

The Ellenby reference includes an Action Data System that tracks and identifies the location of each Action Data Element (e.g., players, umpires, coaches, umpires) and broadcasts the information in real-time to the vision system, i.e., the Brighteyes system. The Action Data System includes high speed color video cameras, frame grabbers, a two-way digital radio, a keyboard, a color screen, and a light-pen to allow an operator to rapidly select items on the screen. Each frame grabber enables the computer processor in the Action Data System to use stop frame action to track the location of each Action Data Element in view. As each Action Data Element enters the field of play, it is identified with a unique identifier by checking off a pre-arranged list or roster or by an operator designating an Action Data Element utilizing the light-pen and keystrokes. The ball is also designated in a similar way. Using the unique identifier, the Action Data System 46 has access to data relating to each player to allow the image processing software in the Action Data System to better analyze the stop-frame images. This may also enable the operator to resolve difficulties in machine recognition of the play. Such information could include color of uniforms, height of player, left- or right handed of player.

The Action Data System, after determining the position of each Action Data

Element, transmits this information over the digital radio to the Brighteyes units. The Action Data System 46 also transmits results of the previous play as it relates to statistics. Each piece of information is tagged with a personal ID number. The information is transmitted to a Transaction Data System 48 which updates the database with new information. (*Col. 7, line 28 - col. 8, line 40*).

The Ellenby reference does not disclose, teach, or suggest the electronic apparatus of independent claim 1, as amended. Unlike the method of independent claim 1, the Ellenby reference does not include a method including receiving video input data of a sporting event; generating in real-time semantic information and geometric information based on the video input data *without input from an operator* utilizing software applications which include rules and determine from tracking information all the statistical information that is to be recorded for the sporting event, wherein the semantic information and the geometric information generated are textual information, and the semantic information includes event model information that describes game-rule type events that occur during a game; and generating sporting statistics based on at least one of the semantic information and the geometric information.

The Examiner identifies that col. 10, lines 31 - 37 of the Ellenby reference meets the limitations of generating real-time semantic and geometric information without input from an operator. (*Office Action, page 10*). Applicant asserts that col. 10, lines 31 - 37 of the Ellenby reference teaches the replaying of data from previous plays utilizing stick figures and or computer-generated animation of the players in action and does not disclose the generation of real-time semantic and geometric information and does not disclose generation of data. Further, the Ellenby reference discloses that an operator is

integrally involved in the generating the geometric information of the play. Specifically, the operator selects an Action Data Element by checking off a pre-arranged list or roster or by an operator designating a player, umpire, or manager by a light-pen and by assigning a unique identifier, utilizing keystrokes. (*Col. 7, lines 59 - 65*). In addition, the operator also is required to designate the general area where the ball would first appear from the pitcher's hand so that the image processing software may commence tracking the ball. (*Col. 8, lines 3 - 10*). This is not the same as a method of automatic statistics generation and management including receiving video input data of a sporting event; generating in real-time semantic information and geometric information based on the video input data *without input from an operator*. The Ellenby reference requires input from an operator to designate the players or check a pre-arranged list and also to designate the general area where the ball would first appear. Accordingly, applicant respectfully submits that claim 1, as amended, distinguishes over the Ellenby reference.

Independent claim 1, as amended, further distinguishes over the Ellenby reference. Unlike the method of claim 1, as amended, the Ellenby reference does not concern a method including receiving video input data of a sporting event; generating in real-time semantic information and geometric information based on the video input data without input from an operator, *utilizing software applications which include rules and determine from tracking information all the statistical information that is to be recorded for the sporting event*, wherein the semantic information and the geometric information generated are textual information, and the semantic information includes event model information that describes game-rule type events that occur during a game; and

generating sporting statistics based on at least one of the semantic information and the geometric information.

Instead, the Ellenby reference describes generating and transmitting the position and identification of each Action Data element and also discloses transmitting the results of the previous play as it relates to statistics (*Col. 8, lines 25 - 32*). This is not the same as a method for generation of sporting statistics and management including generating in real-time semantic information and geometric information based on the video input data without input from an operator, *utilizing software applications which include rules and determine from tracking information all the statistical information that is to be recorded for the sporting event*. The Ellenby reference at most describes transmitting geometric information and results relating to statistics, but does not disclose utilizing software applications including the rules of the game. Further, the Ellenby reference does not disclose utilizing the tracking information, i.e., position and identification of each Action Data element, to determine all of the statistical information that is to be recorded for the sporting event. The Ellenby reference does not discuss how statistical information is calculated.

The Examiner cites that the Ellenby reference discloses generation of semantic information in disclosing that the Action Data System updates Major League baseball statistics after each play. (*Col. 9, lines 26 - 33*). The Ellenby reference also discloses the transmission of results of the previous play as it relates to statistics. (*Col. 8, lines 28 - 31*). Applicants assert that this merely expresses a desire of the Ellenby system to transmit results of the previous play relating to statistics and does not disclose any structure for obtaining this desire. Specifically, the Ellenby reference does not disclose

utilizing *software applications which include rules and determine from tracking information all the statistical information that is to be recorded for the sporting event*, as required by independent claim 1, as amended.

The Examiner cites that col. 14, lines 32 - 53 of the Ellenby reference meets the limitation of processing the tracking information to generate the semantic information and the geometric information. The Ellenby reference discloses at col. 14, lines 32 - 53 the creation of graphical interface objects called panels and that the panels may be fixed at the location of a physical object that is moving, if the unit receives location data for that object from the Action Data System 46. Applicant asserts that the Ellenby reference is disclosing a system receiving geometric information and displaying a graphic image, i.e., panel, based on this geometric information and is not discussing generating semantic data at all. The Ellenby reference is not teaching the processing of tracking information to generate the semantic information. Specifically, the Ellenby reference is not disclosing generating in real-time semantic information and geometric information based on the video input data without input from an operator, *utilizing software applications which include rules and determine from tracking information all the statistical information that is to be recorded for the sporting event*, as recited in independent claim 1, as amended.

Accordingly, applicant respectfully submits that independent claim 1, as amended, further distinguishes over the Ellenby reference.

The Kelts reference does not make up for the deficiencies of the Ellenby reference. The Examiner utilizes the Kelts reference to show a gateway connected to the statistics management system to support query applications from a user interface.

(Office Action, page 8). The Examiner also states that the Kelts reference discloses a data miner to extract and analyze sporting statistics stored in the statistics database.

(Office Action, page 8). In addition, the Examiner cites that the Kelts reference discloses that sporting statistics are saved in a predefined Extended Markup Language (XML). (Office Action, page 9). The applicant acknowledges that the Kelts reference discloses a gateway server configured to receive requests from a PDA and to communicate the requests to appropriate web servers via the Internet. The applicant also acknowledges that the Kelts reference utilizes a data miner configured to extract, format, and otherwise process data associated with the use of display system. In addition, the applicant acknowledges that the Kelts reference discloses the storing of XML map data and a plurality of images in an image repository.

However, the Kelts reference does not disclose, teach or suggest a method including receiving video input data of a sporting event; generating in real-time semantic information and geometric information based on the video input data *without input from an operator utilizing software applications which include rules and determine from tracking information all the statistical information that is to be recorded for the sporting event*, wherein the semantic information and the geometric information generated are textual information, and the semantic information includes event model information that describes game-rule type events that occur during a game; and generating sporting statistics based on at least one of the semantic information and the geometric information. Accordingly, applicants respectfully submit that claim 1, as amended, distinguishes over the Kelts reference, alone or in combination with the Ellenby reference.



Independent claims 11, 23, and 31, all as amended, recite similar limitations to independent claim 1, as amended. Accordingly, applicant respectfully submits that independent claims 11, 23, and 31, all as amended, distinguish over the Ellenby and Kelts references, alone or in combination, for the same reasons discussed above in regards to independent claim 1.

Dependent claims 2 - 5, 7, 9, 12 - 13, 15 - 19, 21, 24 - 26, 28, 30, 32 - 35, and 37 - 38 depend, indirectly or directly, on independent claims 1, 11, 23, and 31. Accordingly, applicant respectfully submits that claims 2 - 5, 7, 9, 12 - 13, 15 - 19, 21, 24 - 26, 28, 30, 32 - 35, and 37 - 38 distinguish over the Ellenby and Kelts references, alone or in combination, for the reasons discussed above in regards to independent claim 1, as amended.

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Applicant believes that the claims are in condition for allowance, and a favorable action is respectfully requested. If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call either of the undersigned attorneys at the Los Angeles telephone number (213) 488-7100 to discuss the steps necessary for placing the application in condition for allowance should the Examiner believe that such a telephone conference would advance prosecution of the application.

Respectfully submitted,

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